

a substantially inelastic outer shell having an inner wall, the shell being dimensioned for wearing around a portion of a human limb;

an inflatable/deflatable bladder supported between the inner wall of the outer shell and the portion of a human limb; and

battery-operated electrical and pneumatic circuitry, all wearable by the user without interconnection to any other apparatus, the electrical circuitry including:

an electrically operated air compressor, and

a controller operative to inflate the bladder on periodic basis so as to create a level of compression against the portion of the limb for a period of time, after which the bladder deflates until the next compression cycle.

SA21
22. The apparatus of claim 21, wherein the controller is operative to vary the level of compression as a function of time.

SA21
23. The apparatus of claim 21, wherein the controller is operative to vary the onset of decompression as a function of time.

SA21
24. The apparatus of claim 21, wherein the controller is operative to reduce the rate of cycling between compression and decompression as a function of time.

SA21
25. The apparatus of claim 24, wherein the reduction in cycling between compression and decompression drops off slowly over the course of several days.

5A>1
26. The apparatus of claim 25, wherein the rate of cycling between compression and decompression gradually reduces to one cycle every several minutes.

9A>1
27. The apparatus of claim 25, wherein the rate of cycling between compression and decompression gradually reduces to one cycle every hour or longer.

5A>1
28. The apparatus of claim 21, further including a user operable control for switching between a fixed rate of compression and decompression to an automatic mode wherein the cycling between compression and decompression reduces over time.

5A>1
29. The apparatus of claim 21, further including a pressure sensor in pneumatic communication with the bladder to terminate the operation of the compressor upon reaching a desired level of positive pressure.

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30. The apparatus of claim 29, further including a valve for deflating the bladder upon achieving a predetermined pressure.

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31. The apparatus of claim 21, wherein the substantially inelastic outer shell forms part of a cast.

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SA21*
32. The apparatus of claim 21, wherein the substantially inelastic outer shell is dimensioned for wearing around an upper portion of a human calf.

SA 71
33. The apparatus of claim 21, wherein the substantially inelastic outer shell is dimensioned for wearing around a lower portion of the human calf immediately above a human foot.

SA21 0
34. The apparatus of claim 21, wherein the substantially inelastic outer shell is dimensioned for wearing at least a portion of a human foot.

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35. The apparatus of claim 21, wherein the substantially inelastic outer shell is dimensioned for wearing around at least a portion of a human hand.

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36. The apparatus of claim 21, wherein the substantially inelastic outer shell is substantially rigid.

37. The apparatus of claim 21, wherein the substantially inelastic outer shell is composed of a non-stretch fabric.

38. Portable apparatus for deep vein thrombosis (DVT) prophylaxis, comprising:
a substantially inelastic outer shell having an inner wall, the shell being dimensioned for wearing around a portion of a human limb;
an inflatable/deflatable bladder supported between the inner wall of the outer shell and the

portion of a human limb; and

battery-operated electrical and pneumatic circuitry, all wearable by the user without interconnection to any other apparatus, the electrical circuitry including:

an electrically operated air compressor, and

a controller operative to perform the following functions:

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- a) inflate the bladder on periodic basis so as to create a level of compression against the portion of the limb for a period of time, after which the bladder deflates until the next compression cycle, and
- b) reduce the rate of cycling between compression and decompression as a function of time.

39. The apparatus of claim 38, wherein the reduction in cycling between compression and decompression gradually reduces over the course of several days.

40. The apparatus of claim 39, wherein the rate of cycling gradually reduces to one cycle every several minutes.

41. The apparatus of claim 39, wherein the rate of cycling gradually reduces to one cycle every hour or longer.

42. The apparatus of claim 38, further including a user operable control for switching between a fixed rate of compression and decompression to an automatic mode wherein the cycling

between compression and decompression reduces over time.

43. The apparatus of claim 38, wherein the controller is further operative to vary the level of compression as a function of time.

44. The apparatus of claim 38, wherein the controller is further operative to vary the onset of decompression as a function of time.

45. Portable apparatus for deep vein thrombosis (DVT) prophylaxis, comprising:
a substantially inelastic outer shell having an inner wall, the shell being dimensioned for wearing around a portion of a human limb;

an inflatable/deflatable bladder supported between the inner wall of the outer shell and the portion of a human limb; and

battery-operated electrical and pneumatic circuitry, all wearable by the user without interconnection to any other apparatus, the electrical circuitry including:

an electrically operated air compressor, and

a controller operative to perform the following functions:

a) inflate the bladder on periodic basis so as to create a level of compression against the portion of the limb for a period of time, after which the bladder deflates until the next compression cycle, and

b) vary the level of compression as a function of time.

46. The apparatus of claim 45, wherein the controller is further operative to reduce the rate of cycling between compression and decompression as a function of time.

47. The apparatus of claim 45, further including a user operable control for switching between a fixed rate of compression and decompression to an automatic mode wherein the cycling between compression and decompression reduces over time.

48. Portable apparatus for deep vein thrombosis (DVT) prophylaxis, comprising:

- a substantially inelastic outer shell having an inner wall, the shell being dimensioned for wearing around a portion of a human limb;
- an inflatable/deflatable bladder supported between the inner wall of the outer shell and the portion of a human limb; and
- battery-operated electrical and pneumatic circuitry, all wearable by the user without interconnection to any other apparatus, the electrical circuitry including:
 - an electrically operated air compressor, and
 - a controller operative to perform the following functions:
 - a) inflate the bladder on periodic basis so as to create a level of compression against the portion of the limb for a period of time, after which the bladder deflates until the next compression cycle, and
 - b) vary the onset of decompression as a function of time.

49. The apparatus of claim 48, wherein the controller is further operative to reduce the rate

of cycling between compression and decompression as a function of time.

50. The apparatus of claim 48, further including a user operable control for switching between a fixed rate of compression and decompression to an automatic mode wherein the cycling between compression and decompression reduces over time.